The MPG Illusion

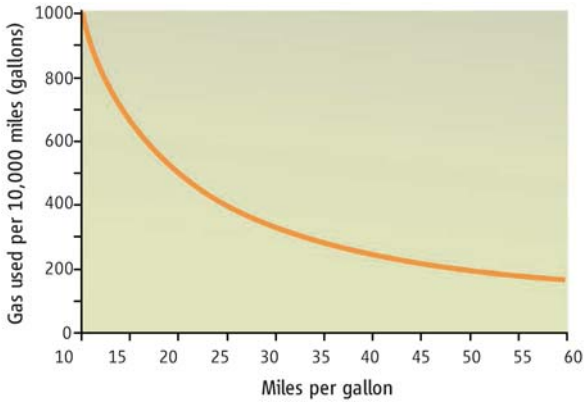
** Based on an article in Science magazine, June 20, 2008*

Which saves more gas: replacing a car that gets 25 miles per gallon (mpg) with one that gets 35 mpg? Or replacing a car that gets 16 mpg with one that gets 20 mpg?

Before you answer, consider this. Here in the U.S., we measure fuel efficiency by looking at how many miles a car can travel on a gallon of gas, rather than how many gallons of gas it takes to travel a given distance.

Many other countries calculate fuel efficiency in terms of liters of gas consumed per kilometer. This is a better gauge of the impact your car has on your wallet (with the cost at the pump) and on the environment (with the amount of fuel burned) for the amount of driving you do.

Now for the answer: Replace the car that gets 16 mpg with one that gets 20 mpg. On a 400-mile trip, a car that gets 16 mpg uses 25 gallons of gas, while one with 20 mpg uses 20 gallons. Thus, there's a savings of five gallons with the more fuel-efficient car.



Gas consumed driving 10,000 miles. Gallons of gas used per 10,000 miles driven as a function of fuel efficiency of car (expressed in MPG). *Credit: From Larrick & Soll, SCIENCE 320:1593 (2008). Reprinted with permission from AAAS.*

The savings are smaller when going from a car that gets 25 mpg to one that gets 35 mpg. The car with 25 mpg uses 16 gallons of gas on that 400-mile trip. The one with 35 mpg uses 11.4 gallons, a savings of 4.6 gallons.

These kinds of savings are reflected in the graph above. When you look at gallons of gas used per 10,000 miles driven, big decreases in gas consumption start to level off with cars that get more than 35 mpg.

www.nsf.gov/news/special_reports/math